IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	Chari, et al.
Serial Number	:	09/227,770
Filing Date	:	January 18, 1999
Examiner	:	Jenise E. Jackson
Group Art Unit	:	2131
For	:	OBLIVIOUS PROXYING USING A SECURE COMPUTER

TO: The Honorable Commissioner of Patents
and Trademarks
P.O. Box 1450
Alexandria VA 22313-1450

APPEAL BRIEF

Sir/Madam:

Three copies of this brief are submitted in support of Applicants' appeal of the Examiner's rejections of claims 7, 9 - 13, 40 and 59 and in the above-identified application. The Appeal Fee for filing a brief in support of this Appeal in the amount of $500.00 and any other fees required should be charged to Deposit Account 50-0510. An extra copy of this authorization page is enclosed. This Appeal Brief is organized in accordance with the format set forth in 37 C.F.R. 41.37 and found in Section 1205 of the Manual of Patent Examining Procedure.

1. REAL PARTY IN INTEREST

The real party interest in this Application is *International Business Machines Corporation*, Armonk, NY which has authorized this appeal.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeal or interferences pending that relate to this case.

3. STATUS OF CLAIMS

The status of the claims with respect to the instant application is as follows:

Pending: Claims 7, 9 – 13, 40 and 59.

Canceled: Claims 1-6, 6, 14 – 39, 41 – 58.

Appealed: Claims 7, 9 – 13, 40 and 59.

4. STATUS OF AMENDMENTS

There was an amendment, and a later supplemental amendment, filed in response to the final rejection dated May 4, 2006. Claim 9 was canceled therein. These amendments did not result in allowable claims

5. SUMMARY OF CLAIMED SUBJECT MATTER

The elements of the broadest claims 7 and 40 are set forth hereinafter with the supporting cite for the specification page and line(s) following. The language of Claim 7 (and Claim 40* where underlined) is as follows:

"A method for providing secure communication on a network, the method comprising:

providing a secure communication between a client and a server employing an untrusted proxy by means of: (page 6, lines 1 – 12).

*The comments presented herein as supporting cites with respect to the elements found in Claim 7 are hereby incorporated *in haec verba* as to Claim 40. Thus any reference to the support for elements found in Claim 7 which elements are also present in Claim 40, shall apply equally to Claim 40.

employing said proxy between said client and said server to provide connection links between said client and said server; (page 10, lines 8 - 10).

embedding a secure coprocessor for use as an agent of said client and/or said server which assures that said proxy cannot tamper with the functioning of said agent and view unencrypted communication between said client and said server, said agent being a software program or hardware logic operating within the confines of said secure coprocessor; (page 10, lines 10 - 13); page 24, lines 8 - 10).

said proxy receiving a specific encrypted communication request from said client; (page 3, lines 14 - 25; page 11, lines 17 - 21).

said coprocessor is located at the site of said proxy and: (a) acts as a converter between at least one protocol said client supports, and at least one other protocol supported by said server, (b) guarantees that an application embedded in said coprocessor performs to a degree of security proscribed by said client and/or said server; (page 11, lines 12 - 26).

said proxy forming an n-tuple for a specific communication; (page 19, lines 20 - 26).

said proxy forwarding said n-tuple to said coprocessor; (psge 19, lines 20 - 26).

said coprocessor generating a response, including a directive to said n-tuple; (page 20, lines 15 - 18; page 25, lines 18 to 26).

said coprocessor sending said response to said proxy and (page 20, lines 15 - 16).

said proxy implementing a directive; (page 20, lines 17 - 18) and

employing the respective security protocols of said at least one protocol and said at least one other protocol; (page 20, line 19 to page 22, line 8).

splicing a plurality of secure communication protocols of different protocol suites into the agent, wherein the step of splicing a plurality of secure communication protocols is a security protocol of a Wireless Application Protocol Suite (WAP) to that of an Internet Protocol (IP) device, said WAP being used by a pervasive computing device, and said agent performs at least one content adaptation function. (page 22, line 9 to page 24, line 7)."

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 7, 10 - 13, 40 and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cashman (US 6,209,087) in view of Lincke. (US 6,397,259). The Examiner asserts that Cashman discloses every element found in Applicants' claims except that the reference does not disclose a plurality of secure communication protocols of different protocol suites into the agent, wherein the step of splicing a plurality of secure protocols is a security protocol of a Wireless Security Protocol (WAP) to that of an Internet Protocol (IP) device. The Examiner contends that Lincke discloses splicing a plurality of secure communication protocols of different protocol suites into the agent, wherein the step of splicing a plurality of secure protocols is a security protocol of a Wireless Security Protocol (WAP) to that of an Internet Protocol (IP) device.

7. ARGUMENTS

GROUNDS OF REJECTIONS AND ARGUMENT AS TO 35 U.S.C. § 103(a):

Single Ground of Rejection

Claims 7, 10 - 13, 40 and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cashman (US 6,209,087) in view of Lincke. (US 6,397,259).

As noted above, the present invention relates to secure proxying for computing devices. The invention is directed toward network security protocols which are used to insure privacy and integrity of communication on an open public network. These protocols are intended to achieve

end-to-end security guarantees such that the communication is private to the entities that establish the parameters of the secure communication channel. Applicants emphasize that "Security guarantee" is a critical feature of the invention.

Pending Claim 7 defines the use of a secure coprocessor which is used to achieve end to end security guarantees in the protocol translation between client and server. This feature assures that the proxy cannot tamper with the functioning of the agent and view unencrypted communication between said client and said server. The agent is a software program or hardware logic operating within the confines of the secure coprocessor.

Cashman et al., as discussed later in greater detail, describe a method which uses a coprocessor to implement elements of the protocol translation process between client and server. The Examiner does not accept that the coprocessor (which is under the control of the proxy) is trusted differently from the secure coprocessor in Applicants' claim which secure coprocessor enforces a very strong trust model. Claim 7 states that the protocols that the secure coprocessor will splice are the security protocols of WAP and SSL/TLS. The Examiner has acknowledged that this "splice" feature is not found in Cashman. In Cashman's system, the proxy is trusted to do the aforementioned protocol translation, and the coprocessor is used merely as performance-enhancing means. It is submitted respectfully that the Examiner has not interpreted the teaching of the Cashman reference correctly.

Note that in Cashman, the proxy can, and does tamper with what the coprocessor does. In Cashman, the proxy directly controls the coprocessor. Applicants re-emphasize that there is no end to end security guarantee being maintained by the protocol translation process of Cashman as is the case in the present invention. The Cashman protocol translation process is different from that claimed by Applicants. This basic difference is essential in the overall obviousness rejection as the skilled artisan would properly interpret the teaching of Cashman contrary to the Examiner's interpretation and would consequently not mnake the unwarranted assumption made by the Examiner in her rejections.

The unique feature of Applicants' invention is the trust model of the splicing. In Applicants' invention the secure coprocessor does not trust the server, whereas in Cashman, the CPU is an integral portion of the protocol translation. Note that in Cashman's scheme, the contents are available unencrypted to any agent/process on the proxy.

A key word in the present invention is "trust." In Applicants' invention, the coprocessor and the proxy do NOT trust each other. This concept is defined in Claim 7, which *inter alia* states: "embedding a secure coprocessor for use as an agent of said client and/or said server which assures that said proxy cannot tamper with the functioning of said agent and view unencrypted communication between said client and said server, said agent being a software program or hardware logic operating within the confines of said secure coprocessor..." The Examiner contends that the excerpt cited above is taught in Cashman at "*...fig.1, see col. 7, lines 48-65.*"

Applicants respectfully submit that the teaching at the location cited immediately above (or anywhere in the Cashman reference) does not teach the trust aspect as between coprocessor and proxy as Applicants are claiming. There is a distinct difference between what Applicants claim and what Cashman teaches. In Column 8, lines 5 - 8, Cashman says the CPU instructs the coprocessor to concurrently encrypt and compress and packetize data which is does and then notifies the CPU. This teaching of encrypting and compressing is no basis for properly asserting that Cashman meets the language excerpted above as to the role of the proxy as claimed. Cashman's words do not say what the Examiner says they do. The simple act of encryption and compression does not meet the function of the proxy. In reviewing the overall Cashman system, there is not the security (trust) feature in place as among the entities present which is claimed by Applicants.

Cashman does not disclose each and every element defined in Applicants' Claim 7, et al. In order to formulate a rejection, the Examiner thus cites Lincke, et al. to supplement the Cashman reference to supply the specific teaching that she asserts Cashman is lacking. Succinctly stated, the Lincke invention is focused on transcoding for wireless devices and optimizing the communication from the proxy to the client.

Lincke discloses an improved system and method for using a handheld device to access Internet information over relative low bandwidth networks. Lincke is directed toward a communications system which includes the wireless communications device, a server, and a source of data. The server acts as a proxy server. Typical sources of data are a web server or a mail server. In reviewing the Lincke, et al. patent, as noted below, the disclosure does not address the issue of splicing a plurality of secure communication protocols which is a security protocol of a WAP to that of an IP device. Essentially, Lincke seeks to optimize the number of messages sent to a wireless client.

The objective Lincke, et al. sought to emphasize was to consider wireless networks, such as two-way pagers and other wireless packet data networks, which provide wider coverage and lower cost than competing networks. These wireless networks typically have relatively low performance however. A single packet of 400 bytes can take eight seconds just to travel to the Internet and back when the system is lightly loaded. With such a low throughput, it could easily take minutes to download even a small web page using standard browser technology. The wireless communications system therefore employs novel methods for reducing the amount of traffic sent over the wireless link for web access. The skilled artisan would consider these deficiencies when reflecting on wireless communication systems.

Lincke, et al. wanted to provide the user with fast access to web content. Although the wireless communications device can access generic web content, because of the wireless communications device's limited screen size, most existing content will not be as visually appealing, will be harder to navigate, and may take longer to access than specially formatted content. Thus, significant advantages are achieved with customized content. The web content can be formatted for the small screens of most handheld communications devices. This content will download relatively quickly (because of its small size). The formatted content can be created and published using the same tools used today for desktop web publishing (i.e. HTML tools and web servers) and could even be viewed using a standard desktop browser.

Applicants use the coprocessor in their invention to enforce a trust model between the client and the server. The secure coprocessor guarantees that no external entity can tamper with the functioning of the hardware logic or software programs. The use of the coprocessor in the present invention insures that end to end security is guaranteed. Again something that Cashman does not insure nor does Lincke even consider.

It is essential to note in the present invention, neither the proxy nor any external entity can tamper with the functionality being implemented by the software programs or hardware logic functioning with the confines of the coprocessor. This is not found in Lincke, et al.

Applicants respectfully submit that the specificity of the Cashman and Lincke disclosures in combination, do not render obvious or even imply the method of providing secure communication of the present invention as presently claimed. In the rejection, the Examiner is picking and choosing elements to the exclusion of what the references as a whole teach to one skilled in the art.

In order to analyze the propriety of the Examiner's obviousness rejections in this case, a review of the pertinent applicable law relating to 35 U.S.C. § 103 is warranted. The Examiner has applied the Cashman and Lincke, et al. references using selective combinations to render obvious the invention.

Cashman at Column 1, lines 29 - 39 discloses that "During data communications, the manner in which bits of data are specifically arranged and the order in which they are exchanged between devices is called a protocol...There are many different types of protocols serving different purposes, but each typically involves a sending device that arranges data in one manner, and a receiving device that detects the specific arrangement of the data in order to make use of the data upon reception."

Cashman then discloses that the CPU is responsible for performing protocols on data and exemplifies the activities so performed. (Column 1, lines 51 - 63). Cashman cites examples of protocols which are in the prior art such as V.42bis, HDLC, SLIP and PPP and CRC. (Column 2, lines 5 - 63).

It is a column 3, lines 1 to 20, that Cashman states that these protocols "...suffer a variety of problems..." It is at Column 3, starting at line 21, etc. that Cashman details that his invention overcomes the problems with the prior art. He states that "The present invention provides a network device (with CPU) including a *unique co-processor* having symmetrical architecture and an extended processor instruction set..." See Column 5 for a detailed disclosure of the extension processor instruction logic circuits and specifically the "...XALU created according to this invention." The manner in which the Cashman invention operates is detailed in Columns 5 and 6 of the patent.

Applicants respectfully point out that Columns 5 and 6 of the Cashman disclosure explain all of the many features of the system that make it, in his own words, `unique`, i.e., *being with out a like or equal.* The disclosure referred to above clearly establishes that there are many very specific features which must be considered when seeking to combine this reference with another. The skilled artisan, in reviewing the reference is going to interpret the teaching as applying to a network device having a CPU, etc., as described in Column 7, lines 48 - 65. The Cashman's `unique` system is not designed for a wireless application.

Lincke discloses a wireless communications system. Lincke states in his preliminary remarks that in a high bandwidth network system, such as a wired network, (like Cashman) the usual techniques for browsing data on the Internet are adequate. (Column 3, lines 2 - 5). At Column 3, lines 6 - 32, Lincke explains how, using a wired CPU, one connects to the Web. He then explains at Column 3, line 33 etc., that "for low bandwidth networks, this *TECHNIQUE DOES NOT WORK WELL.*" (Emphasis added) Even if connected to a high bandwidth network, most handheld devices do not have screen area or processing power to display the graphics and large amounts of text in a typical web page. Further problems with the prior art are found in Column 4, lines 5 - 40. It is clear that Lincke, in his disclosure, seeks to distance his invention from the wired networks and previous wireless systems.

The Lincke system is very specific. It contains specified elements used in the wireless communication system; it has a network topology with very specific protocols (which would not be compatible with the Cashman system) used to communicate among the various devices in the system; it has its own CML markup language, and other features unique to it alone.

The Examiner asserts that the language in Claim 7 "wherein the step of splicing a plurality of secure communication protocols is a security protocol of a Wireless Application Protocol Suite (WAP) to that of an Internet Protocol (IP) device," is disclosed at col.9, lines 56-67, col.10, lines 1-2, col. 11, lines 8-25 of Lincke. Applicants respectfully disagree. There is no such disclosure at the locations cited in Lincke. The disclosure of Lincke at col. 11, lines 8-17 relate to a wireless system. There is no teaching in Lincke which positively equates the wireless system with the wired network systems. In fact, as cited above, Lincke states that they are different.

The Examiner's obviousness rejection of the claims is incomplete as she has not provided the proper evidentiary foundation for the rejection. The predicate for the combination of Lincke with Cashman comes, not from the disclosures found in the text, but rather based upon the assumptions that the Examiner contends would occur in mixing the wired system of Cashman with the wireless system of Lincke. The two specific systems to Cashman and to Lincke are totally different. There is no proper basis to combine them.

The Court of Appeals for the Federal Circuit has set guidelines governing such application of references. These guidelines are, as stated are found in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ, 543, 551:

> When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself.

A representative case relying upon this rule of law is Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988). The district court in Uniroyal found that a combination of various features from a plurality of prior art references suggested the claimed invention of the patent in suit. The Federal Circuit in its decision found that the district court did not show, however, that there was any teaching or suggestion in any of the references, or in the prior art as a whole, that would lead one with ordinary skill in the art to make the combination. The Federal Circuit opined:

> Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 USPQ 2d at 1438, citing Lindemann, 730 F.2d 1452, 221 USPQ 481, 488 (Fed. Cir. 1984).]

With respect to the combination of the Cashman and Lincke, et al. references, the Examiner has selected elements from these references for the sake of showing the individual elements claimed (e.g., protocol, server, proxy, client, agent) without regard to the total teaching of the references. As noted, the Examiner is improperly picking and choosing. The rejections are a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the requirements of 35 U.S.C. § 103.

> The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case because she did in fact pick and choose so much of the Cashman and Lincke, et al. disclosures to support her position and did not cover completely in the Office Action the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

As noted above, Lincke, et al. desire to provide the user with fast access to web content. Cashman teaches against Lincke's objective stating at Column 3, lines 6 - 8 that *"A CPU executing a program to compress and encrypt data must process data fast enough to fully utilize available data communications bandwidth. Fast processors are expensive and increase the cost of data communications devices."* Lincke, et al. state that "*A goal of the invention is to provide the user with fast access to web content.*" The goals stated by these teachings are diametrically opposite. There is no basis to combine the references as has been done in the Official Action based upon their respective teachings and objectives. The Examiner in an earlier Official Action (January) stated on the record that the Claims as extant were allowable (patentable) over Cashman alone. The Examiner then reversed her position and did another search and cited Lincke, et al. Essentially, the Lincke, et al. disclosure is a non-analogous art based upon its teaching with respect to Cashman.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness, and that this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

> Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., 732 F.2d at 1577, 221 USPQ at 933. [837 F.2d at 1075, 5 USPQ 2d at 1599.]

The Court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion or incentive to do so.

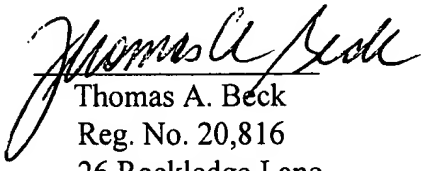
In the present case, the skilled artisan viewing the Cashman and Lincke, et al. references would not be inclined to combine the references but would be directed toward a totally different system than that which is defined in the pending claims in the instant application. There is no teaching in Lincke, et al. directed toward Applicants' objective of use a secure coprocessor to perform protocol translation in a manner that preserves the end to end trust model between the client and server. There is no mention of security and one cannot assume that combining the entire teaching of Lincke, et al. with Cashman would not compromise the Cashman system. The skilled artisan must consider the entire teaching of Lincke, et al. before combining it with Cashman. Applicants' Claims define a "secure coprocessor" which explicitly means tamper resistant/ tamper-proof and further means that the coprocessor is translating protocols while still maintaining the trust model between the client and server. Neither Cashman nor Lincke, et al. disclose those elements. The combination is improper.

Claims 7, 10 - 13, 40 and 59 are dependent upon Claim 7. Since the arguments applied to Claim 7 are persuasive as to its allowability, it follows that claims dependent thereon are also allowable. As the Examiner has stated, "motivation applies above."

For reasons set forth in this arguments section, it is respectfully requested that this Honorable Board find Claims 7, 10 - 13, 40 and 59 as allowable.

November 9, 2006

Respectfully submitted,



Thomas A. Beck
Reg. No. 20,816
26 Rockledge Lane
New Milford, CT 06776

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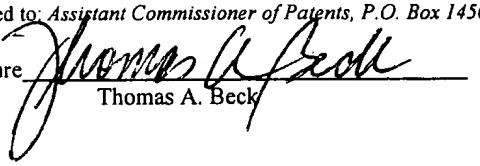
Signature  Date: November 9, 2006

Name: Thomas A. Beck